SECTION 13019

CEILING GRID SUPPORT SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY:

A. Section Includes:
1. Structural system consisting of a steel channel/strut system, threaded rods, turnbuckles and bolts, washers, hexagon nuts and accessories in the cleanroom and supporting areas to support the modular cleanroom ceiling grid and miscellaneous above ceiling utilities.

B. Work not included: Fire protection system will be supported separately and is not a part of this support system.

1.3 REFERENCES/PROJECT REQUIREMENTS

A. Requirements of the following Project Specification Sections apply to this section:
1. Division 0 – Contract Instruction
2. Division 1 – General Requirements
3. Section 01110 – Cleanroom Construction Protocol
4. Section 01111 – Cleanroom Construction and Cleaning Procedures
5. Section 01112 – Cleanroom Certification and Acceptance
6. Section 13020 - Cleanroom Ceiling Grid System
7. Section 13036 - Cleanroom Wall Systems

B. Additional project requirements:
1. ASTM A36 – Standard Specification for Carbon Structural Steel
2. ASTM A123 – Standard Specification for Zinc Coatings (Hot-Dip Galvanized) Coatings on Iron and Steel Products
3. ASTM A153 – Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
4. ASTM A575 – Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades
5. ASTM A576 – Standard Specificatioin for Steel Bars, Carbon, Hot Wrought, Special Quality
6. ASTM A635 – Standard Specifications for Steel, Sheet and Strip, Heavy Thickness Coils, Carbon, Hot Rolled
7. ASTM D1654 – Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to corrosive Environments

1.4 SYSTEM DESCRIPTION

A. Complete clean room ceiling grid support systems as described below including but not limited to the following metal components:
1. Steel channel/strut members
2. Threaded rods

3. Spring nuts
4. Hexagon nuts
5. Flat washers
6. Lock washers
7. Turnbuckles
8. Beam Clamps
9. Expansion anchors
10. Miscellaneous components

B. Support System: Strut grid system supported from the structural steel consisting of strut channels 4'-0" on center in each direction with threaded rods, turnbuckles and accessories.
1. Grid Dimension: Standard 4'-0" x 4'-0" centerlines each direction.
2. Uniform Load Capacity: 30.0 lbs./ft²
3. Point Load for Ceiling Grid Support Rod: 250 lbs./rod
4. Location of rods: directly above ceiling grid - 4'- 0" x 4' – 0" spacing (1200 mm x 1200 mm) and at locations as noted on drawings.
5. Approximate length of Rods: Bottom of turn-buckle shall be leveled 36 inches (900mm) above finished ceiling level.
6. Diameter of Rod 3/8"

1.5 SUBMITTALS

A. Submit the following in accordance with Conditions of Contract and Division 1:
1. Shop Drawings: Indicate fabrication details, joint locations and connection to other work.
2. Samples: Submit samples of each component and accessory to be used on the project.

B. Submit Test reports certifying entire system complies with the requirements set out in these Specifications.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Factory requirements for delivery, storage, and handling shall be in accordance with Division 1 – General Requirements.

B. General:
1. Deliver materials in their original unopened packages.
2. Exercise care in handling components to prevent damage.
3. Store materials in such manner as to prevent damage or intrusion of foreign matter. Conspicuously mark "REJECTED" on materials which have been damaged, and remove from the jobsite.

C. Any units arriving at the jobsite that have not been adequately protected will be rejected by the Owner and must be returned to the manufacturer for replacement at no additional cost or delay to the Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. A specific product or material manufactured by any of the following listed manufactures is "acceptable but not "approved") only if the specific products or materials can evidence exact compliance with the Contract Documents.

1. Unistrut Corporation
2. Cooper B-Line Systems, Inc.
3. Hilti, Inc.

B. Single Source Responsibility: Structural channels and all accessories, except expansion anchors, shall be provided by a single manufacturer

2.2 MATERIALS

A. Framing Members
1. Channel profiles shall be manufactured from low carbon steel and cold formed to size.
2. Threaded rods shall be fabricated from steel conforming to one of the following ASTM specifications: A575, A576, A36, or A635.
3. Hardware and fittings shall be fabricated from steel conforming to one of the following ASTM specifications: A575, A576, A36, or A635.

2.3 FINISHES

A. Channel profiles:
1. Rust inhibiting acrylic enamel paint applied by electro-deposition, after cleaning and phosphating and thoroughly baked.
2. Paint finish shall meet ASTM D 1654 un-scribed failure less than 5% when tested for 612 hours.

B. Hardware and fittings:
1. Hot-dipped galvanized. Zinc coating process shall conform to ASTM A123 or A153.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that conditions are ready to receive work of this section. Notify the Owner's Representative in writing of any existing conditions which will adversely affect execution. Do not proceed until satisfactory corrections are completed. Beginning of execution will constitute acceptance of existing conditions.

3.2 PREPARATION

A. Confirm and coordinate the locations of channels and hangers with the final position of the ceiling grid.

3.3 INSTALLATION

A. Set system components into final position true to line, level and plumb, in accordance with approved shop drawings.

B. Anchor material firmly in place. Tighten all connections to their recommended torque.

3.4 REPAIR/RESTORATION

A. Patch back any unused anchor bolt holes drilled into the substrate with approved patching compound. Touch-up painting/coating with approved materials to match surrounding surfaces.

B. Touch-up channels damaged during installation with approved materials.

3.5 CLEANING

A. During installation and at completion of the work, it shall be the responsibility of the installer to remove all protective wraps and debris from the work site. Repair any damage due to installation of this work.

B. Installer to comply with the work sites cleanroom protocol requirements.

END OF SECTION 13019